

The Ballarat Naturalist

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45th Stella Bedggood Lecture **Towards better community appreciation of** **“environmental” geology** **Leon Costermans**

An audience of over 80 gathered in person at the clubrooms and many more via Zoom to hear Leon Costermans speak. After a friendly check on his audience's familiarity with geology, Leon began by naming the three applications of the science of geology: economic e.g. mining, structural and engineering, and “environmental” geology – its relationship to the natural environment. (page numbers in brackets refer to references in Leon's newly published book “Stories beneath our feet”).

As an example of the use of such knowledge Leon quoted the problems currently assailing the tunnel excavation for the Snowy 2.0 Hydro project where the tunnel-boring machine had encountered soft rock and become bogged for over a year. The geological map (p516) revealed a complex mix of rock types crossed by numerous faults.

A discussion of the concept of “ecosystem” revealed that geology is rarely taken into account; the emphasis tends to be on flora, fauna and atmospheric gases. Yet living things exist between the atmosphere and the substrate. The underlying rocks determine soil type, topography, hydrology, offer protection to animals and anchorages for plants. After pointing out that silica and oxygen together form the largest proportion of elements in the earth's crust, Leon demonstrated how sand could vary considerably from place to place depending on its location, age and additional minerals. Consequently the flora and fauna would vary too. Leon used the front cover illustration of his book to demonstrate how rock type determined the topography, soils and vegetation.

Leon was at pains to stress that we should not refer to the “Great Dividing Range” but rather to “The Divide” i.e. the line in Victoria dividing northward-flowing streams from southward-flowing streams. As he writes on p455 in his book, *The present Divide is not at all discernible on the ground where it is a part of the basalt plains*. He also added that the position of the Divide has gradually changed over time according to the locations of the deep leads which have been mapped.

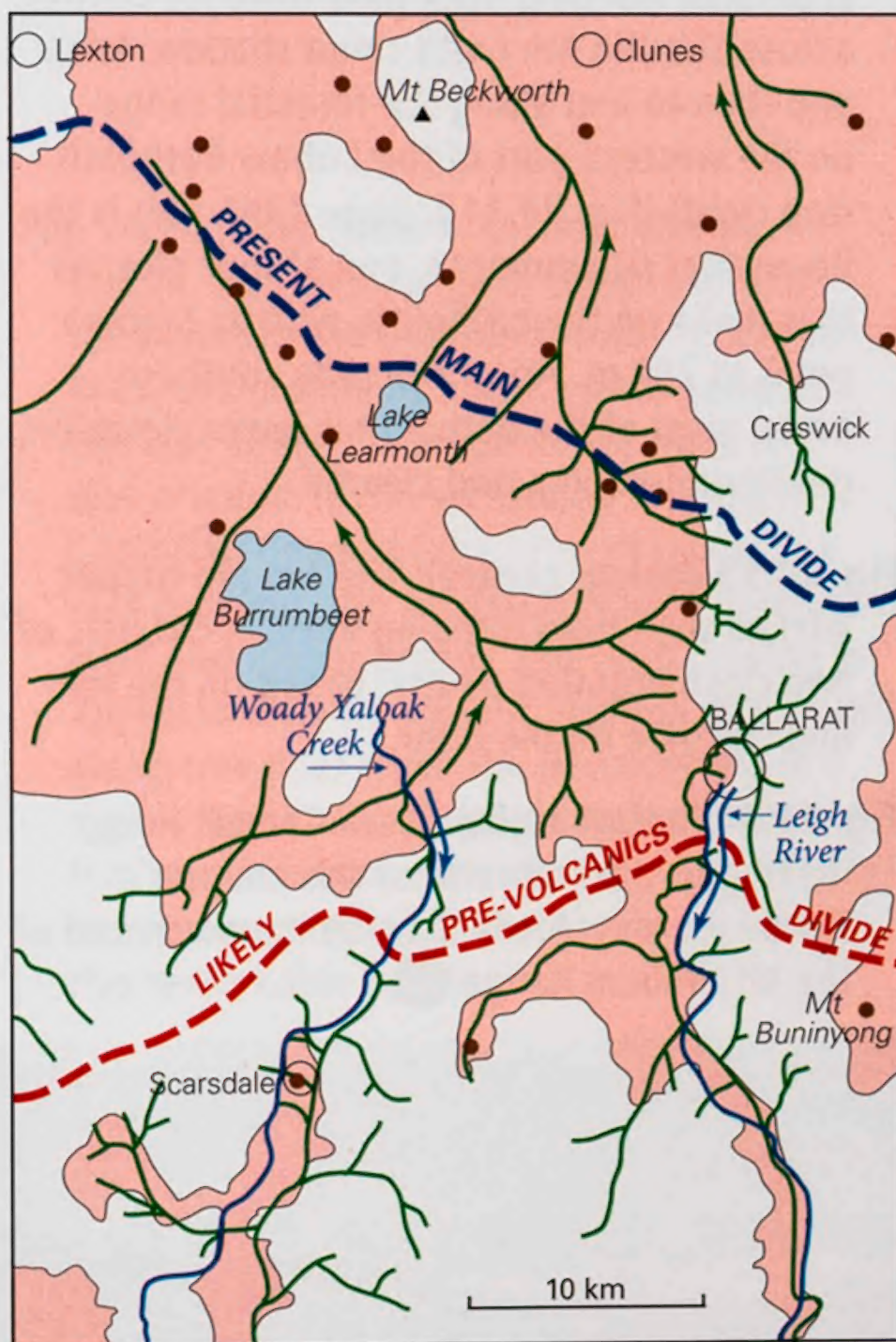
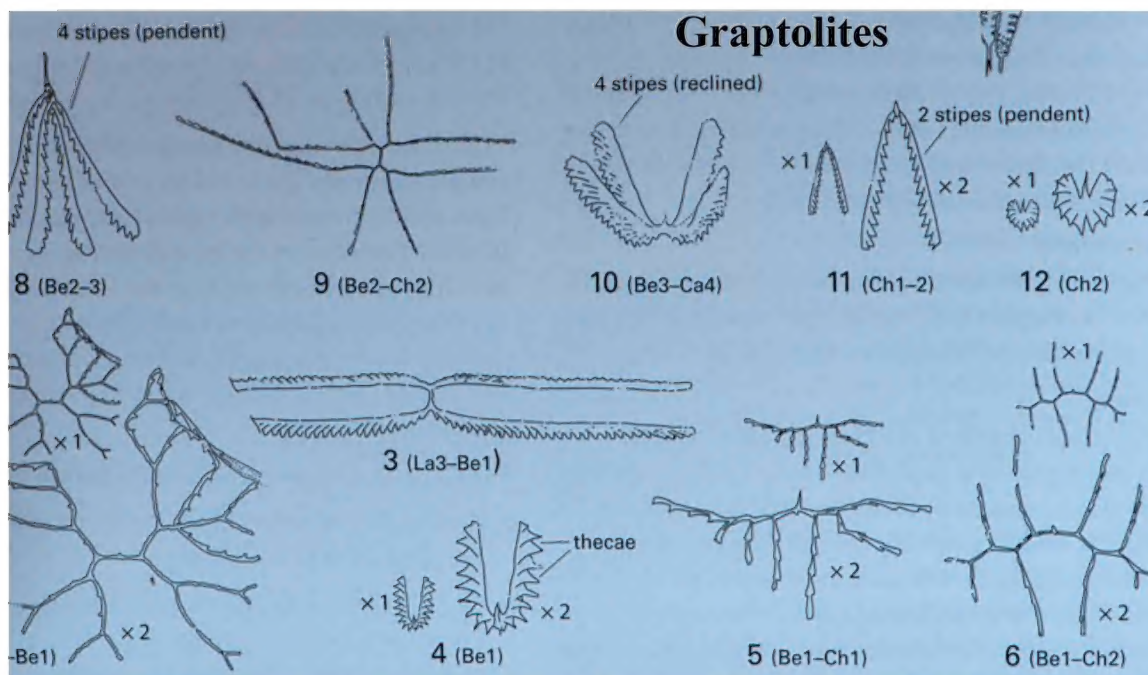


Fig. 24.50: The green lines mark the deep leads as mapped in *Deep Leads of Victoria* (Mines Department, 1937). On this basis, it is inferred that the drainage divide would have been further south in this area (red) than at present (blue). Named present features for reference. The pink area is Newer Volcanics distribution.

Then, addressing his comments specifically to the Ballarat region, Leon explained that many local features seen today lie above the basement rocks of Palaeozoic age, over 400Ma.(p61) In our area, visible basement rocks are Ordovician deep marine sediments known as turbidites – think underwater avalanches of sediment eroded from the then eastern Gondwanaland. The Norman St road cutting in Ballarat shows folding and faulting structures together with gold-bearing quartz veins. (p459) In the wider area fossils of colonial animals called graptolites are found in the finer sediments of this age and can be traced worldwide.(p72)



During the Devonian period granite was intruded, the hot magma “cooking” the surrounding rocks creating metamorphic aureoles. A clear illustration was shown of the road up Mt Buffalo where a total change of vegetation occurred between the junction of the granite and the weathered hornfels aureole. (p252) The You Yangs and Dog Rocks near Geelong are all part of another pluton. Mt Egerton (grano-diorite) and Mt Beckworth are prominent granitic features.

In the Permian period glacial activity scoured the land surface leaving erratics and distinctive striations on rocks in the Heathcote area, and depositing unsorted material known as “till” which is exposed in Werribee Gorge. (p250)

The basement rocks were eroded, resulting in the gold-bearing White Hills Gravel. This was covered by the basalt flows of the Newer Volcanics within the last 6Ma. Streams incised valleys through the

basalt and the discovery of gold led to deep lead mining which Leon discussed. (p420). He showed us a map (p418) sprinkled with the different types of volcanic cones: the dome-shaped shield volcanoes formed from solid lava and supporting grassland; scoria cones such as Mts Warrenheip and Buninyong formed from fragmented lava and covered in trees especially Manna Gums; maars were briefly mentioned. Other features formed by local geology included the Moorabool Falls dropping from beds of basalt while further downstream the Granite Falls are caused by an intrusion of grano-diorite. Basalt plains at Rokewood support native grassland.

Leon finished his talk by showing images of landscapes and asking the audience to interpret them in the light of his subject matter! He was presented with a gift by Emily Noble amidst great acclaim from a most enthusiastic audience.

Report and images by Carol Hall, also from *Stories beneath our feet*



President Margaret Rich & Leon Costermans
holding a branch of the *Grevillea Bedgoodiana*

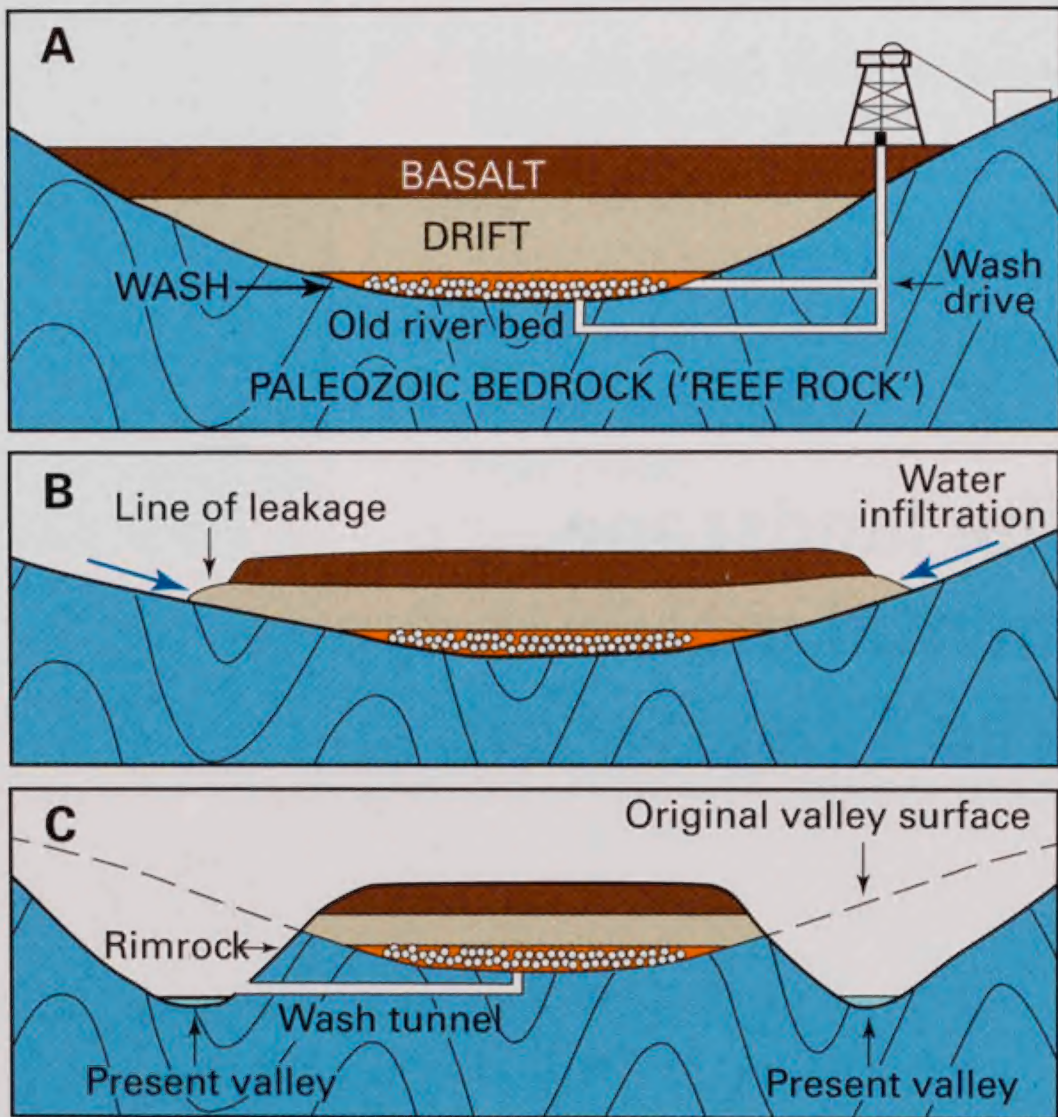


Fig. 23.3: Some situations encountered in 'deep lead' mining, and terms used by the miners. (Adapted from *Deep leads in Victoria*, Mines Department, 1937).



NOVEMBER 5th OUTING – MT BECKWORTH

Leaders Roger Thomas and Emily Noble

We parked at the main dam and took a few walks from there during the day. Our first walk was around the dam, where tiny ephemeral damp-loving plants were pointed out: – Pink Bladderwort, Woolly-heads, the tiny trigger-plant known as Hundreds-and-thousands and several more. We saw several planted native but not indigenous trees and shrubs, some of which were becoming weedy.

Small green-striped Fireblight Beetles on Black Wattles attracted interest, as well as gastroliths (“yabby stones”), which are a calcium supply inside a yabby to provide material for a new exoskeleton when the time comes. Those we found on the shore were there because their bodies had been dismembered by herons and cormorants.



Before our circuit of the dam concluded, we found some handsome tall blue sun-orchids, the first of quite a few to be found during the day. Being blue and un-spotted, and with tepals less than 18 mm long meant that they were probably *Thelymitra nuda*. The Scented

Sun-orchid, although having no significant perfume, was noticed. Smaller “pauciflora-type” sun-orchids were also seen, as well as a possible third species, tall but paler.



Plain Sun-orchid *thelymitra nuda*

After a morning break, we divided into a climbing group and a walking group. The walking group found more sun-orchids and numerous Chocolate-lilies, while the climbers gained good views

east, north and south, with Mts Franklin, Kooroocheang, Buninyong and many others visible. On the way to Mt Beckworth we had crossed the main Divide, between Blowhard and Coghill's Creek, but, as our speaker had pointed out a couple of days earlier, it was neither "great", nor a "range" in this part of Victoria. At the top of the short climb we were rather surprised to find Drooping Sheoaks to be the main trees, with few eucalypts. An old rock fence of large granite pieces aroused our interest; it was possibly built in the 1920s for sheep grazing. A Sweet Bursaria with a trunk 48 cm in diameter was admired.

The afternoon program commenced with a walk through the 100 or so 60-year-old Cork-oaks below the dam, where more tiny ephemeral plants were found, as well as a few Cut-leaf Goodenias, which were not found anywhere else during our excursion. Rufous whistler, Yellow-faced Honeyeater, Grey Shrike-thrush and other birds called frequently as we again separated into two groups, one to take a longer walk and one shorter. Early-flowering Blue Pincushions signalled the end of the spring wildflower season, with ground now dry and leaf litter and dry vegetation crackling underfoot. Both groups found more sun-orchids and just a few of the last Beard-orchids. Bulbine Lilies, Milkmaids, Small Grass-trees, blue-bells and others attracted attention as we walked. One grass-tree clump had three flower stems – one normal, straight and tall, while the other two had coiled amazingly near the ground, seemingly tying themselves in knots instead of rising straight. A couple of echidnas were seen by one group. Earlier in the day, a possible Jacky Lizard darted into shelter before being positively identified. A few African orchids were pulled before they formed seed. White-browed Babbler, Kookaburra with young in the nest, White-necked Heron, White-browed Woodswallow, Spotted Pardalote and others provided interest for bird-observers in the group. A minor mystery for the group undertaking the longer walk was the constant loud buzzing of bees or blowflies, but with no insects being visible, and no eucalypt blossom to attract them. Some members stopped on the road out to see 20 or 30 Fairies' Aprons on the damp roadside.

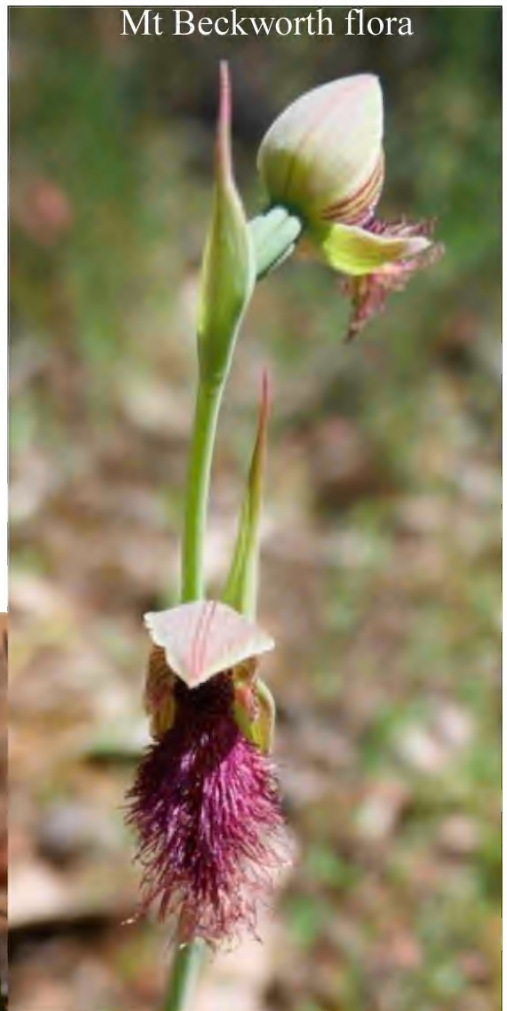
A few botanical names: Pink Bladderwort – *Utricularia tenella*, Woolly-heads - *Myriocephalus rhizocephalus*, Hundreds and thousands – *Stylidium despectum*, Fairies' Aprons – *Utricularia dichotoma*.

Report by Roger Thomas.

Images Carol H & Val H



Sticky Everlasting



Beard— Orchid



Blue Pincushion



Sun Orchids

SEANA Camp Yarram October, 2023

Hosted by Sale and District FNC and Latrobe Valley FNC

“Where the east meets the west, from sea to the mountains, with a huge range of habitats”, Yarram was well-chosen for this event. Over 120 attended from 18 different FNCs, including a dozen from Ballarat, enjoying a mix of formal evenings, guided excursions and trips, and the opportunity to explore individually, sometimes beyond the weekend and the immediate area.

Our members enjoyed the following **Excursions and Tours:**

Tarra-Bulga National Park with its rich botanical diversity was the focus, visiting cool temperate rainforest and the striking fern gullies, inc. Tarra Valley. Les Hanrahan was delighted to see the unusual “Beech Orange” fungus.

Birding at Toora and Foster featured the Toora Bird Hide (inc. 80 Bar-tailed Godwits) and the Scarlet Honey-eater and, appropriately, named Bird Orchid in the Messmate-Peppermint forests of the Foster reserves.

Seawalls Edge Nature Reserve is an impressive private area of regeneration, and visitors were shown saltmarsh, mangroves, wetlands and a fine native garden. Many innovative ideas and long-term commitment were evident.

Won Wron State Forest excursions centred on an area surrounding White Woman’s Waterhole. The Sunday trip focussed on birdlife with 24 species seen, while the Saturday trip was more concerned with exploring the impressive Banksia/Grass Tree forests (and also ventured to the Great Southern Railway Track).

McLoughlin’s Beach did begin with some sighting of estuary water-birds, but mostly took us to areas where leader, Mitch Smith, has carried out long and extensive research into the pollination of orchids. Despite a poor blooming season offering us few flowers, his tales were instructive and entertaining

Mullungdung State Forest explored 5 or 6 areas of dry eucalypt forest and its recent history.

Alberton West State Forest is an area unburnt and not logged for 80 years, and, among the flowering species were Bird and Bearded Orchids, with accompanying Gang Gang Cockatoos and King Parrots.

Wilson Promontory’s bus trip was significantly affected by Sunday’s heavy rain and wind, but did give access to Tidal River, views from the Vereker Outlook, and Millers Landing with its Banksia Woodlands.

Old Port Trail followed the coastal trail through varied vegetation,

with forest and coastal birds.

Agnes Falls, near Toora , gushing after Sunday's rain, was an easy detour for some members on their return trip the next day. The small local reserve impressed with its views, surrounding forest and bird-life.



Socialising, comparing experiences and dining each evening was followed with **Illustrated Lectures:**

Sex, Lies and Photography (Mitch Smith) Through years of study and intensive field research of orchid pollination, he has achieved photographic evidence of many intricate, almost unbelievably specific, links to various pollinators.

These can involve 1. “Sexual deception” where (usually) wasp species are attracted by a convincing replica of a receptive female
2. “Food/Resource deception” where (usually) bees come for pollen but leave with a sac to be transferred to the next flower visited, not for their own use

3. “ Food/Resource reward” usually involves gnat flies in sometimes quite complex plant structures. Smith’s outstanding images have solved mysteries, and convey the wonder of nature even at such a small scale. These were captured after the sacrifice of long, taxing field research.

Eucalypts of the Strzelecki Range ... (Jenny Wolswinkel) This provided insight into the evolution of the third edition of her book.

Her background in seed collection, plant and koala surveys, and regeneration projects led into work as a trainer. Needing a simple tool to correctly identify eucalypts, she began to develop a concise and clear diagrammatic format. This refined her own understanding of the process of identification, and she went on to gain and incorporate new skills (photography, computer-based page layout and book design, copyright and marketing), and become involved in valuable collaborations. The impressive new edition will be widely used.

Tarra-Bulga National Park (David Akers) Just 25 years after the first selectors commenced logging to clear for farming, the Shire of Alberton reserved 20 acres to preserve fern gullies unequalled in Victoria. Akers outlined the growth and development through to today's 2002 hectares. Photos and tales included picnickers, the suspension bridge, farmers' "heartbreak hills", a prison farm and recent Native Title claim. Victoria's first female ranger, from 1951, the tireless Kara Healey, documented over 1000 species (mainly fungi, but also ferns and mosses) and eventually added her own farm to the park. A detailed account of the flora (87.1% Wet Sclerophyll forest, 10.4% Cool Temperate Rainforest, 2.5% drier Damp Forest), fauna (19,500 observations from trail cameras showed 51 species: 21% Lyrebirds, 19% Swamp Wallabies, 8.5 for both Brush Bronzewing and Bassian Thrush- and also Wombats, Long-nosed Bandicoot, along with 6% foxes and 1.7% feral cats).



Cyathea Falls Tarra National Park

The speaker's 20 year association with the park, and notification of thousands of observations of species, gave real substance to this talk.



Tarra Valley rainforest walk entrance



From Toora bird hide where the 80 Bar-tailed Godwits were feeding. Wilson's Promontory is in the background



Flag Irises and Bird Orchids seen at Foster Nature reserve

Many thanks to the organisers and leaders who adapted so well to difficult climatic conditions and sparse local blooms, still providing such a full and rich programme.
-Shirley Faull.

Images VH



The Great Southern BioBlitz was held for recording on iNaturalist from Friday 24th to Monday 27th November. The world-wide City Nature Challenge is held each year in the northern hemisphere spring and is hugely popular. But as that is autumn for us, some southern hemisphere naturalists got together and created the Great Southern BioBlitz so that we could record what happens in spring in our half of the

world. The Ballarat Region Project for 2023 has been created, and we hope you are able to upload your photos and other observations taken that weekend in the next few days

<https://www.inaturalist.org/projects/great-southern-bioblitz-2023-ballarat-region>

The project will automatically collect any observations, by anyone, made in our area during the BioBlitz, so joining the project is not essential for your observations to count.

General Ballarat Field Naturalist Club Information

As there was no business meeting at our November meeting, there are no meeting Minutes for this month.

Our Stella Bedggood Memorial Lecture:

-Attendance- 79 people signed the attendee register, including 30 members and 49 visitors (A few people came in the back door so their attendance wasn't recorded). The visitors included three of Stella's children: Edwin, Margaret & Dorothy. A further eight members and 16 visitors attended via Zoom [i.e. total attendance recorded was 38 members and 65 visitors (103 people)], and the feedback afterwards was excellent.

Thanks to all the helpers who moved chairs to and from other rooms, set up our room with all available seating, decorated the room with lots of native flora, provided a bountiful supper. Also to Graeme for his technical support. A special thanks to President Margaret for hosting our guest speaker for a meal and organising his accommodation.

Our Calendar of activities 2024

The Committee would like members to suggest guest speakers, topics and Field Trip ideas for 2024/25

Please contact us if possible by our next Committee meeting on January 23rd

The FNCB Newsletter To share the load, we continue to ask for volunteers to offer to write report notes and/or provide photos each month, so our Newsletter becomes an informative record of our Speakers presentations, observations and Field outings.

I thank each person who has contributed this year with their various styles of write ups. Each has been a delight to read.

If you have any other information, Postcard accounts of special Holidays, book reviews, that you feel might be of interest to our Members, please send them to Val at any time.

SEANA dates 2024 19-22 April Phillip Island
End of October 2024. Marysville

Spring 2025— Ballarat is hosting SEANA—so planning will need to begin from Mid 2024.

Read Shirley's summary of the terrific Yarram Seana weekend and consider putting one or both of the above weekend events in your

Calendar. They are great ways to be escorted around new areas and meet Field Nats from other groups around Victoria.

Registration forms will be sent out early 2024 for the Phillip Island weekend. The first circular letter has just been sent. You are advised to book your accommodation early.

Our Next Club Meeting: Friday 1st December:

Member's Images: *Beauty is in the eye of the beholder.*

Hybrid meeting. Please bring your images/ objects for a Five-minute presentation. Supply your photos to Graeme on a USB stick or email them to him prior to the meeting (especially if attending via Zoom).

Mask-wearing will be encouraged again.

Presenting members are asked to write up a summery of their presentations and supply a photo or two to Val for the February newsletter please.

Sunday 3rd December field trip-

3.20pm: meet at Clarkesdale Bird Sanctuary at 360 Linton-Piggoreet Rd for departure at 3.30pm sharp after carpooling and dropping off BYO picnic tea for later (fridge and toilets available).

Arrive at Sunset Sanctuary, 18 Dawkins Rd, Berringa, at 3.45pm for a two hour wander around.

Then head back to Clarkesdale to have a BYO picnic tea at the Environment Centre at 6pm and a little walk if time allows, before heading back to Sunset Sanctuary at 8pm to see its wildlife.

Their favourite food is shelled peanuts. So if members would like to get very close, bring some shelled peanuts and a camp chair. Torches ok but not bright spotlights. Finish time: 9.30pm. Please take care when departing as wildlife roams across driveway and local roads.

We still need someone to write up the December Field Trip and the February field trip for our Newsletter please

Excursions and Meetings

Fri Dec 1st Members Images *Beauty: in the eye of the beholder*

Sun Dec 3rd Meet 3.20pm—at Clarkesdale Sanctuary Linton

Leaders Roy Pails and Emily Noble –We will visit Roy’s fauna sanctuary in Berringa; Clarkesdale Bird Sanctuary for picnic tea, then back to Roy’s sanctuary.

Future events

Club meeting Fri Feb 2nd 2024 **Speaker** John Sherwood

Subject -Estuarine coastal ecology

Excursion Sun Feb 4th TBC

Next Committee meeting Tues. 23rd January 2024 at 5pm
at Scarsdale.

BYO picnic tea and ideas for next year’s Calendar of Activities.

**Club meetings are normally held on 1st Friday of the month at
7.30 pm at the Federation Uni Gillies St Campus (corner of
Gillies and Gregory Sts, Lake Wendouree),**

Committee

President	Margaret Rich
Secretary	Emily Noble
Treasurer	Kathy Elder
Committee	Andy Arnold
	Val Hocking
	Graeme Lunt
	John Petheram
	Elva Bird
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Meetings - in person and may continue to be held via Zoom.

Members will be kept informed of arrangements each month.

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